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Smart Specialisation in a Centralised State: Strengthening the regional contribution in North East Romania

Dr. Adrian Healy
School of Geography and Planning
Cardiff University
Healya2@Cardiff.ac.uk

Abstract

Research and Innovation Strategies for Smart Specialisation are intended to promote the economic transformation of EU regions, particularly those that are lagging in development. The introduction of RIS3 has not been without its critics. This is not unexpected given its rapid, and, for some, rather hasty, move from conceptual idea to mainstream European Union policy. This paper explores the introduction of the RIS3 approach in North East Romania, one of the EU's least developed regions. Whilst Romania has launched a national RIS3, the Regional Development Agency for North East Romania also voluntarily embarked upon a process of developing a regional RIS3 for the North East region. This provides a valuable opportunity to explore different spatial dimensions of the Smart Specialisation approach and offers the opportunity to consider the extent to which active and well-regarded research actors can act as anchors to a RIS3 approach in a less developed region. The paper argues that whilst the experience of developing a regional RIS3 offers strong learning benefits, the effectiveness of this will be dependent on supporting institutional structures.

Key words

Smart Specialisation; Regional Innovation; Governance; Entrepreneurial Discovery; Less Developed Regions.

1 Introduction

The regulatory agreement governing the EU's Cohesion Policy for the period 2014-20 places a condition on Member States to have in existence a national or regional smart specialisation strategy in order to be eligible for support under the European Regional Development Fund (European Commission, 2013). Known more generally as Research and Innovation Strategies for Smart Specialisation (RIS3), this mandatory requirement has generated a strong debate regarding the appropriateness of the approach to stimulating innovation performance; the implications of this for different types of regions in the EU and the implementation of the concept in practice (Cooke, 2012; Foray, 2014).

In developing Research and Innovation Strategies for Smart Specialisation, little attention has been given to the interplay of, potentially overlapping, strategies at different governance levels. There appears to be an assumption that RIS3 at national and regional level will either be mutually reinforcing or mutually exclusive. This paper considers the emerging practices of Smart Specialisation in a context where both national and regional strategies are being developed in an independent manner, and the potential implications of this for regional economic development. The paper explores these questions in the context of one of the EU's least developed regions, North East Romania. In doing so, it offers valuable insights into both the strengths and the limitations of the smart specialisation approach in more challenging economic contexts.

The research on which this paper is based was undertaken during the period April 2014 to June 2015. Alongside secondary data, it is based on interviews with key stakeholders representing the Regional Development Agency; County Councils; Universities; firms, and intermediary bodies located in North East Romania, plus national and international correspondents familiar with smart specialisation in Romania. The purpose of the interviews was to explore the approach, the constraints and the opportunities facing the implementation of a smart specialisation approach in North East Romania.

The paper is structured as follows: Section 2 briefly outlines a background to the debate around smart specialisation; Section 3 then highlights some of the main characteristics of Romania and the North East region that might influence the smart specialisation approach. Section 4 outlines the experience of developing a RIS3 strategy and the challenges for developing a stronger entrepreneurial discovery process in the region. Finally, Section 5 presents some conclusions on the findings of the research.

2 The concept of smart specialisation

The concept of smart specialisation was first elaborated in 2008, and emphasises the need for policy makers to make choices as to which technologies or sectors should be supported through public policies (Foray et al, 2011). By making choices, it is argued, one can realize scale economies, through achieving critical mass, and develop distinctive paths based on areas of competitive advantage. Through focusing on areas of comparative strength it is also possible to avoid the mimetic strategies that have characterized innovation policy-making in recent years.

A RIS3 is intended to identify selective knowledge 'domains', or priorities, in areas where a region (or a Member State) has a comparative advantage (Foray, 2014; European Commission, 2012). The approach is intended to promote a concentration of resources on these domains for reasons of effectiveness and efficiency, both within the region and also across the EU. As Kroll (2015b) notes, the European Commission has neither the "mandate nor the capacity" to identify regional specialisations itself and so the onus is placed on regional or national governments to do so through a 'bottom-up' process of entrepreneurial discovery, drawing on the knowledge of local firms, knowledge institutions and public actors.

Recognising that the public sector is insufficiently informed to identify those areas of comparative strength, the approach advocates an entrepreneurial focus, building on the knowledge of businesses and other actors. Drawing on work by

Hausmann and Rodrik (2003), Foray and colleagues argue that, at its heart, smart specialisation has to be built on an entrepreneurial discovery process undertaken by firms and other organisations operating in the economy (Foray et al, 2011). That is, a process of self-discovery whereby firms identify what can, and cannot, be produced competitively at a particular time or place. In this regard, the entrepreneurial discovery process is one of trial and error, of success and, importantly, of failure (Hausmann and Rodrik, 2003). This builds on the ideas of Hayek (1978), in that entrepreneurial discovery involves firms becoming aware of opportunities that were not previously visible. Kirzner (1997) argues that this takes us beyond simple notions of imperfect information as it suggests that some opportunities are simply unknown until they are tried and tested. For some, the state should play an active role in the discovery process itself (Mazzucato, 2013), but in most of the smart specialisation literature to date the emphasis has been on designing a process to identify those economic domains where regions (or Member States) believe that they have the potential to obtain a comparative advantage (Boden et al, 2015).

A key feature of the RIS3 approach is its territorial focus. The European Commission explicitly describes Research and Innovation Strategies for Smart Specialisation (RIS3) as "integrated, place-based economic transformation agendas" (European Commission, 2014a), highlighting their role in the restructuring of the European economic landscape and responding to the EU's support for place-based development (Barca, 2009). In a development from previous practices that emphasized the regional dimension, however, the RIS3 approach allows for the conditionality to be met at either a national or a regional scale. In practice this has led to a variegated approach, with some Member States submitting national strategies, some regional strategies and others a mixture of both.

The RIS3 approach also owes much to the heritage of regional innovation systems thinking that has been a foundation for the evolution of regional economic development policy over the past twenty-five years (Cooke, 2001; Asheim and Gertler, 2005). It also draws on the experience gained from previous

European Union initiatives promoting the development of regional innovation strategies[1]. However, the rapid, and, for some, rather hasty, move from conceptual idea to mainstream European Union policy (Foray, 2014; Kroll, 2015a) has led to criticism of both the concept and its implementation (Cooke, 2012). As Foray and colleagues themselves acknowledge, there seems to be a growing gap between the policy practice and the theory (Foray et al 2011).

In practice, the application of the concept has been criticized by some for its apparent over-emphasis on science and technology-led innovation with a focus on high-tech sectors (Cooke, 2012) whilst others have pointed to a focus on imitative innovation (Capello and Lenzi, 2013) or a strong orientation towards a traditional framing of priorities alongside a watering down of selected priority choices to more general categorisations (Iacobucci, 2014, McCann and Ortega-Argilés, 2011). The concept is also criticized for appearing to treat all regions as equal (Torre and Wallet, 2013). For many, it is difficult to shake off the idea that the concept of smart specialisation is more appropriate to the development of advanced regions, with established research and innovation systems, rather than less developed regions[2].

The EU's Less Developed Regions offer a valuable testbed for the RIS3 concept as they are, arguably, the most challenging environment in which to develop innovation support policies, yet are those most in need (see Oughton et al, 2002 regarding this paradox). Such regions often exhibit unfavourable research and innovation systems, are typically confronted by organizational thinness; lock-in to declining sectors and out-dated technologies; fragmented systems that inhibit networking and knowledge exchange, and a weak capacity to drive

[1] 1994-2007 was a time of regional innovation experimentation, which arguably laid the foundations for RIS3 and smart specialisation. Initial pilot actions developing Regional Technology Plans were followed by actions promoting the development of Regional Innovation Strategies (RIS and RIS+), Regional Innovation and Technology Transfer Strategies (RITTS) and a later generation of Regional Innovation Strategies in the EU's new member states.

[2] The EU defines Less Developed Regions as those with an average GDP per capita of less than 75% of the EU average. For the purposes of this paper the author follows the EU's terminology, where 'region' refers to the NUTS 2 statistical unit of the European Union.

transformative change (Tödling and Trippl, 2005; Strambach and Klement, 2012; Weber and Rohracher, 2012).

For the post-socialist economies of the eastern EU, the challenges are exacerbated as they are, to a greater or lesser degree, in a state of transformation from the legacy of centralised governance, characterized by an opening of markets, increased competition, economic restructuring and administrative reform, whilst often exhibiting weak endogenous capabilities (see Blažek and Csank, 2015). This raises the question of the transformative role that RIS3 might play in such circumstances. Whilst there is the opportunity to fast track initiatives, concepts and policy learning from more advanced economies, the environment in which these must be rooted can be singularly problematic.

3 Romania and North East Romania

Until the democratic revolution of 1989, Romania had a centralized socialist economy for more than 40 years. Its economy was centrally planned and enterprise was state-owned. Following the 1989 revolution Romania began a rapid transition to a democratic state with a market-led economy based on private enterprise. Accession to the EU in 2007, triggered further market liberalization. In North East Romania this led to the closure of local industries and the fragmentation of land-holdings in the agricultural sector, providing a substantial challenge to economic development in the region, exacerbated by its peripheral location. There has also been a cultural shift, moving from centrally planned systems, with the separation of academia and industry, to a market-based approach privileging competition but also advocating collaboration.

One of the largest regions in Romania, by land mass and population, North East Romania lags in terms of its economic development. With a GDP per capita of 34% the European average (Eurostat, 2016) it has the lowest level of prosperity in Romania and the third lowest in the EU. Unemployment levels are around the national average pointing to an economy that relies on low value occupations and, potentially, high levels of underemployment. Levels of firm competitiveness

are also low, with the region ranking 251st out of 262 regions in the EU (Annoni and Dijkstra, 2013). Although inter-regional economic disparities across Romania are relatively low, a widening gap is beginning to emerge between the generally poorer eastern regions of Romania and those in the west and, more significantly, the capital Bucharest (Florentina, 2013).

3.1 The governance context

Government authority in Romania remains highly centralized, reflecting the legacy of the socialist era. This is particularly pertinent in the field of smart specialisation, where research and innovation policies are directed by national Ministries and national bodies. The three primary tiers of government in Romania are: national, county and local (municipality, city or commune). The regional tier is purely administrative, consisting of eight development regions (equating to the NUTS2 level) and four macro-regions (NUTS1). Neither have legal status and both exist primarily for the purpose of co-ordinating development projects. This regional governance gap presents a real challenge for securing the development of regional innovation systems in Romania.

A Regional Council and a Regional Development Agency is present in each of the development regions, but their powers are extremely limited. Membership of the Regional Council consists of four representatives from each County in the region (the President of the County Council plus a representative of the municipal councils; the town councils, and the commune councils). Its main purpose is to approve regional development programmes and strategies. Decisions taken by the Regional Council do not have legal status. The Regional Development Agency (RDA) is an independent body, although the Regional Council appoints the Director and approves the budget. The RDA can also be contracted by national Ministries to manage regional funding programmes such as the Regional Operational Programme. In practice, many RDAs rely on Technical Assistance funds from the EU's Structural Funds for their operations, alongside any projects or programmes they are able to successfully secure from national programmes. Technically, the RDAs are responsible to the Ministry for

Regional Development, which has not, to date, been a significant actor in the Smart Specialisation process in Romania.

The North East Romania development region is located on the eastern periphery of the EU. It is bordered to the north by Ukraine and to the east by Moldova. The region is formed of six Counties (Bacău, Botoşani, Iaşi, Neamţ, Suceava, Vaslui), with the principal urban areas located in Iasi and Bacău. Iasi is the fourth largest city in Romania. The North East RDA was established in 1999 and currently has a staff of more than 130 people. Most of its activities are reliant on project-related funding. Since 2007 the RDA's role has principally been to act as the intermediary body for the implementation of the North East Romania Regional Operational Programme. In addition it acts as an intermediary body for the national Competitiveness Sectoral Operational Programme. The RDA has a reputation as a progressive actor, with a regional office in Brussels and a history of work in the field of regional innovation strategies.

The influence of the institutional setting on economic growth is now well recognized (Acemoglou and Robinson, 2012; Charron et al, 2014; Rodríquez-Pose, 2013; Rodríquez -Pose and Di Cataldo, 2015). This is a particular challenge in Romania, where the quality of government is identified as amongst the lowest in the EU, both nationally and in regions such as North East Romania (Charron et al, 2015). In recent years, Romania has been rocked by a series of corruption scandals across all levels of government. It is estimated that around 20% of all public contracts awarded are to the benefit of firms with political connections, with state institutions and local level administrations particularly prone to capture (Doroftei and Dimulescu, 2015). There are also risks with more explicit conflicts of interest, as evidenced by the fact that, at the time of writing, more than half (22 out of 41) of county council presidents are being charged with acts of corruption (Mihalache, 2015, quoted in Doroftei and Dimulescu, 2015).

There are signs that Romania is now beginning to get to grips with the challenge of corruption. A national anticorruption directorate (DNA) was established in

2002 and it is now bringing prosecutions against powerful elite interests, including two former Prime Ministers, alongside former ministers of agriculture and of regional development. With more than 1000 convictions secured in 2014 alone, and the high profile arrest of the Mayor of Bucharest in 2015 (BBC, 2015) the DNA is beginning to have a real impact on public perceptions of corruption and its practices (Byrne, 2015). Significantly, following popular anti-government demonstrations protesting against corrupt practices, the Romanian President appointed a new Prime Minister in November 2015, who in turn has appointed a technocratic cabinet in an effort to clean the image of government and secure a break with the past.

Whilst corruption may gain the headlines, interviewees for this work also noted that governance in the fields of research and innovation is also hindered by a fragmentation amongst Ministries and Agencies responsible for research; economic development, and regional development. Moreover, a constant churn in recent years of politicians and politically-appointed senior officials has led to policy paralysis and disruptive policy shifts as political priorities change and institutional learning is lost. In a further sign of the policy turmoil regarding the role of research and innovation, all members of the National Council for Scientific Research (NCSR) resigned on 12 April 2013 in protest that commitments to fund R&D activities were not being met, particularly that none of the annual budget for 2012 was to be allocated (European Commission, 2014c). The posts still remained vacant at the beginning of 2015. An additional example of the policy vacuum that can be present in Romania, is provided by the National Council for Science and Technology Policy. Intended to promote intra-governmental coordination and overcome structural fragmentation, it has yet to meet, or act, more than a decade after its formation.

3.2 The research and innovation environment

Levels of innovation across Romania are very low compared to the EU, although there are signs of some catching up beginning to occur (European Commission, 2014b). Whilst levels of innovation activity in North East Romania are less than

50% of the EU average, the region performs relatively strongly when compared to other regions in Romania (Table 1). Around a third of all firms in the region (32.2%) engaged in some form of innovative activity during the period 2010-2012, compared to 20.7% across Romania as a whole. A quarter of firms engaged in organizational or marketing innovations (25.8%), just 1.1% undertook product or process innovation, and some 5.3% carried out a mix of both these categories (National Institute of Statistics, 2014).

Table 1 Comparative innovation performance of NE Romania

	Normalised RIS value	Rank in Romania
% SMEs Innovating in-house	0.133	2
% Innovative SMEs collaborating with others	0.122	2
% SMEs introducing product or process innovations	0.125	2
% SMEs introducing marketing or organizational innovations	0.403	1
Total Non-R&D innovation expenditures	0.267	2
Total R&D expenditures in the business sector	0.081	5
Total R&D expenditure in the public sector	0.152	3

Source: European Commission, 2014b. Note that the Regional Innovation Scoreboard provides normalized data for each indicator by region rather than actual values.

As Table 1 illustrates, North East Romania performs relatively more strongly in terms of non-R&D innovation expenditures, compared to levels of R&D activity. R&D expenditure by the private sector is particularly weak, with expenditure in the public sector performing more strongly. The low levels of expenditure on R&D (GERD) compared to EU and Romanian averages is set out in Table 2. Table 2 also illustrates the dominance of the capital region (Bucharest-Ilfov) in the Romanian research system.

Table 2 Comparative R&D expenditure in Romanian Regions

Development Region	***GERD (€ per***	***% Romanian***

	capita, 2013)	*average*
Bucharest-Ilfov	137	489
West	20.4	72
North West	19.8	70
South Muntenia	19.3	70
North East	*13.6*	*49*
South West	9.8	35
Centre	9	23
South East	4.2	15
Romania	28	
EU 28	542	

Source: Eurostat (2016)

The relatively high level of public expenditure on R&D in North East Romania reflects the presence of a strong research and education sector. This is focused on Iasi, but with important research centres also in Suceava, Roman and Bacau. The region is home to some 13 Universities, two of which are in the top five of all Universities in Romania, including University Alexandru Ioan Cuza, which is the top performer in Romania. It is also the location for eight National Research Institutes and Research Centres. Within the Universities there are also a number of nationally accredited Centres of Excellence, which are recognized and certified by the National Council for Scientific Research and provide access to national funding programmes. Research undertaken in Iasi, is also recognized at the EU level with a relatively strong performance in Framework Programme 7 during the period 2007-13 (European Commission, 2015b).

Table 3 Leading Framework Programme 7 participations (NUTS3, EC contribution)

	Number of participations	% of all Romanian participations	Value of EC contribution (€m)	% of total EC contribution to Romania
Bucharest	527	49.9	70.2	49.0
Cluj	90	8.5	13.1	9.1
Ilfov	83	7.9	11.0	7.6

Iasi	*53*	*5.0*	*13.1*	*9.1*
Timis	52	4.9	8.6	6.0

Source: adapted from European Commission (2015b)

This research capacity is set within a highly centralized, but rather fragmented, national structure. Four groups of public research institutions (or legal bodies) can be broadly identified:

- National Research Institutes - related to the Romanian Academy and other academies – focused on fundamental and basic research
- National Research and Development Institutes – officially focused on applied research and financed through the National Authority for Scientific Research and Innovation or national line Ministries, such as Ministry of Economy, Ministry of Health and Ministry of Agriculture,
- Research Institutes - managed by state-owned companies, such as the railway
- Public Universities with research activities - traditionally focused on basic research

Around two-fifths of the national research and innovation budget is allocated by the Romanian Academy. Of the remaining budget, around two-thirds of public funding for R&D is allocated competitively on the basis of research excellence. This emphasis on research (and competitive funding) has stimulated an increase in the level of publications produced, with universities leading the way. However, as Table 4 illustrates, this has yet to lead to significant gains in the impact that these publications are having and is tending to privilege non-collaborative activities. It also serves to limit the extent to which private firms, with no tradition of research, are able, or willing, to participate – despite the fiscal incentives available.

Table 4 Comparative performance of Romanian science (various measures, EU28)

Measure	***Rank***
Growth rate in number of publications[1]	2/28

Average of relative citations[1]	22/28
Collaboration Index[1]	27/28
Applicant Success Rate in FP7[2]	28/28
Total FP7 participations[2]	18/28

Source: [1]Adapted from Science-Metrix (2015): Scientific Performance of ERA countries in SCOPUS (2000-2013) [2]Adapted from European Commission (2015b)

The national budget depends on EU funds for a significant proportion of national and regional investments in research and innovation, allocated through national Sectoral Operational Programmes. During the period 2007-13 these budgets were significantly increased, representing a rising recognition of the role of research and innovation in promoting economic growth in Romania. However, in practice, much of the budget was never disbursed (European Commission, 2014c) and funds were cut following the onset of the global fiscal crisis, so that by 2013/14 levels were similar to those of 2007.

National strategies, including the RIS3, are also almost silent on the territorial dimension to research and innovation in Romania. Event the Regional Operational Programme, which contains a priority axis for Technology Transfer, is a national programme with differing financial allocations for each development region. Neither the RDAs nor the Regional Councils, such as for North East Romania, have any influence over the content of the programme; the calls for proposals, or the criteria against which proposals to these calls will be assessed.

4 Applying RIS3 in North East Romania

Formally, Romania is meeting the *ex ante* conditionality requirement of ESIF through the preparation of a national RIS3. Billed as a national strategy for research, development and innovation (2014-2020) with a strong smart specialisation component (Gheorghiu et al, 2014) the strategy has been prepared by the Ministry of National Education. In parallel with this, the RDA in North East Romania launched its own RIS3 exercise in the belief that it is only through fully identifying local needs that a justification can be made for seeking EU

assistance. It was also felt that the national approach might not fully realize the potential offered by the RIS3 process for regional development.

4.1 The design of RIS3

The preparation of the national RIS3 has involved an extensive process of analysis and consultation, primarily with leading research actors and major companies. A first cut of potential priorities was identified through an exploratory online consultation, which involved some 1,500 respondents. This was complemented by an analysis of existing R&D activities in Romania, sourced through national RTDI projects, patent analysis, RTDI Structural Fund projects, FP7 projects ISI Thomson articles, companies' track record and top export companies (Gheorghiu, 2016).

The combined analysis led to the establishment of 13 panels corresponding to identified themes. Each panel consisted of 20 participants, selected through co-nomination, who met to discuss current capacity, future opportunities and potential priorities in each area resulting in 'micro-visions' being prepared for six to eight sub-fields under each theme. These micro-visions were tested through an online consultation using a real-time Delphi approach (with 4,091 respondents).

The findings of this exercise were then subject to debate involving National R&D Institutes, the Romanian Academy and private companies. The fields were grouped into four key domains, with a fifth domain (health) added at a later stage to give the following five priority areas:

- Bioeconomy
- ICT, Space and Security
- Energy, Environment and Climate Change
- Eco-nano-technology and advanced materials
- Health

Overall, the development of the national RIS3 has involved an impressive level of activity, with invitations to participate extended to at least 45,000 individuals and more than 4,000 persons choosing to engage (Gheorghiu, 2016). As panellists and online respondents were identified through the analysis of those involved in research projects, publications and patents coupled with nominations and co-nominations, there is a strong suggestion that the national RIS3 privileges existing science and technology-based actors. The strongest levels of engagement are to be found in the Counties of Iasi, Cluj, Timis, Dolj and Bucarest, reflecting the patterns of participation in Framework Programme projects reported earlier. Concerns with the EDP process, alongside other criteria, means that the national RIS3 has not yet achieved the European Commission's ex ante conditionality required for ESIF (private communication). To remedy this, an Action Plan is expected to be implemented by the end of 2016.

Whilst not an ex ante condition, the lack of a spatial dimension to the national RIS3 is of concern to the European Commission. In a review of the Operational Programmes in Romania, it requested the design of regional smart specialisation strategies, resulting in a broad commitment to do so by the Romanian government (private communication, 2016). However, no timelines or allocation of responsibility have been specified. In this vacuum, six of Romania's eight regions have independently begun to develop their own approach, with little coordination or even reflection at the national level.

One of the champions of this approach has been the North East Romania RDA. With a strong legacy of progressive actions in the field of regional innovation, it was one of the first RDAs in Romania to begin the process of developing a regional RIS3. In doing so, it was able to draw on a history of participating in European regional networks and securing European Union funds to promote regional innovation approaches, including the first Regional Innovation Strategy of North-East Region in 2008. The RDA has traditionally adopted a consultative and bottom-up approach, seeking to engage with key regional actors, as well as using financial resources to import techniques and expertise from western

European regions to assist in the analysis of SME needs and the supply-side capacity of research and innovation actors in the region.

In developing its RIS3 the North East RDA not only drew upon past experience, it also followed the RIS3 guide produced by the European Commission (European Commission, 2012), and participated in the Peer Review Seminars organised by the EU's Smart Specialisation Platform[3]. The priorities for the RIS3 were arrived at through both a quantitative and a qualitative approach, building on the heritage of analysis that has helped to develop understanding of the regional innovation system over the past decade. This involved a mixture of comparative analysis, using both national statistics and data for comparable benchmark regions elsewhere in central and eastern Europe, coupled with a consultation exercise organized through 13 workshops (six sectoral workshops; five clusters workshops, and two workshops with business support representatives) involving more than 250 individuals. Almost half of those involved in the workshops represented companies based in the region, with the remaining representatives distributed relatively evenly between academic interests, the public sector and bodies representing or supporting businesses (Table 5).

Table 5 Participation in RIS3 workshops

Representative Interest	***Proportion of participants (%)***
Private companies	46
Local and county authorities	16
Academic representatives	14
Cluster organisations	12
Chambers of commerce and business support organisations	12

Source: correspondence with NE RDA

[3] The Smart Specialisation Platform is part of the EU's Joint Research Council and provides professional advice to EU countries and regions for the design and implementation of their research and innovation strategies for smart specialisation (RIS3). As part of this process, it facilitated a number of Peer Review seminars bringing together regions to discuss the design of their RIS3.

The RIS3 for North East Romania initially identified six fields for potential specialisation, based on the presence of human resources; business infrastructure; Research & Development, innovation, entrepreneurship, public-private partnership, and the presence of specialised industrial clusters. These are broadly drawn fields, although there is evidence of a more selective approach supporting more specialised activities on the ground. Of the original six, two fields (wood products and tourism) were later removed on the basis that there was insufficient active engagement by businesses and other actors. The final selection of four fields was felt to balance the desire to focus resources, whilst also allowing for the possibility of some failure. The four priority fields are:

- Agro food
- Biotechnologies
- ICT
- Clothing and textile

The regional RIS3 was approved by the Regional Council in December 2014, and is incorporated into the Regional Development Plan (under Priority Axis 3: Economic Development). As a voluntary exercise, it currently holds no status in national programmes, but the RDA contends that its value extends beyond that potential. One key benefit of the regional RIS3 analysis was that the process of engagement and consultation highlighted potential new 'mixes' of activity that had not previously been considered in the region. An example of this is the idea of medtech in the biotechnology field, building on the combined strengths of universities, research centres and local companies. It has also served to bring actors together, with the cluster-based focus supporting this, strengthening commitments towards research and innovation-led growth.

However, some of those interviewed expressed concern that the collaborative approach developed as part of the RIS3 process might not be long-lasting. As one interviewee put it: "we meet, discuss, then go back to our daily agendas". Consequently, most collaborations are short-term and project-led, with less emphasis on developing common longer-term strategic agendas. A second

concern expressed by a small number of respondents is that the Strategy was developed as a regional approach and so overlooks some particular local strengths (and challenges). In a sign of the multi-scalar challenge facing all RIS3 exercises, there is concern amongst these actors that this may result in support for projects that meet the regional priorities, whilst omitting some that are more locally significant.

The main benefit of the strategy exercise to date though has been to raise the profile of the interests of North East Romania. The North East RDA contends that by participating in the national strategy process, and using the knowledge that it had of the region, it was able to develop a RIS3 that is well-correlated with the National Strategy for Research, Development and Innovation as well as the National Strategy for Competitiveness. There is certainly a potential synergy between the priority fields identified in the regional RIS3 and those set out in the national RIS3 exercise.

Potentially as significant, is the profile that this is generating outside of Romania. The region has used its RIS3 to establish links with the North Netherlands to establish what might be one of the first examples of transnational co-operation in the field of Smart Specialisation. Initiated by North East Romania, and supported by the European Commission, both regions are now looking to activate joint S3 developments in common fields of interest. The entrepreneurial approach of North East Romania has also led the European Commission to select the region for support under two new pilot initiatives: for 'Lagging Regions' and for the role of Higher Education in Smart Specialisation. In this instance, the European Commission seems to be using the example of North East Romania both as an opportunity for mutual learning but also to seek to influence a national government to adopt a more regionally-aware approach to research and innovation policies.

4.2 The challenge of implementation

Of course, realising the practical outcomes of the regional RIS3 exercise will depend on how it is to be operationalized and implemented in practice. The region lacks the means to implement the regional RIS3 independently and depends on funds available through the ESIF programmes and nationally allocated budgets. In consequence, the success of the regional RIS3 may depend on its alignment with national strategies; the focus of these strategies and the ability of regional actors to drawdown funds from external programmes.

As previously illustrated, the domains selected as priorities in the regional RIS3 demonstrate some complementarity with national priorities, providing the potential for synergies to be realised. However, it remains to be seen whether links will be made in practice. The relevant national Ministries have given no indication that their national programmes will take a regional strategy into account and have stipulated the primacy of the national strategy. Many regional actors have also expressed their uncertainty as to either the official status of the regional strategy, beyond its incorporation into the Regional Development Plan, or how it might be implemented. In effect this means that there is the risk that two, parallel, smart specialisation strategies will be present within North East Romania.

Implementation of the regional RIS3 strategy will be dependent on competitive bidding by public tenders launched under national or transanational programmes. Particular sources will be the National Plan for Research, Technological Development and Innovation (2014-20); the (national) Operational Programme Competitiveness (2014-20); the Joint Operational Programmes between Romania-Moldova and Romania-Ukraine, and the Regional Operational Programme for North East Romania (Priority Axis 1 "Promoting Technology Transfer"). This creates its own challenges.

Firstly, there is the challenge of securing funds from national (or international) programmes through which to implement regionally-derived strategies and ambitions, particularly if regionally-specified priorities are not taken into consideration. This spatial myopia may also be exacerbated if national actors do

not recognize the strength of the regionally identified fields at the national scale. As a potential example of this, a recent exercise for the Ministry of Economy to identify clusters in each of the Romanian regions (GTZ, 2010) identified only tourism and agro-food as potential clusters in North-East Romania, primarily owing to a strict interpretation of the need for inter-firm cooperation and collaboration[4]. If such national exercises hold sway, then it augurs poorly for the ability of North East Romania to realise its potential by working through the national RIS3. Similarly, with much of the national research budget directly allocated by the Romanian Academy, its priorities will determine the ability of the region to benefit, rather than statements of regional strategy.

Secondly, there is the challenge of securing implementation. Interview respondents reported that not only is the public tendering process overly bureaucratic and subject to short-notice changes, but that delays in the procurement process and long-running appeal processes often left insufficient time to implement projects even when funds were successfully secured. Respondents also noted that the increasing attention on tackling corruption in public procurement is leading to a more risk-averse attitude on the part of public officials, academics and firms. This is leading public officials to be overly cautious in the specification and determination of tendering documents, which may lead to difficulties in developing strategically-linked projects supporting regional development.

4.3 Strengthening collaboration in the regional eco-system

The privatisation and liberalisation of both the national and the regional economy has resulted in a hollowing-out of the economic structure, where the applied research functions of large state enterprises have been lost and foreign investments tend not to be in research and innovation functions. This places an emphasis on the ability of the University sector and National Research Institutes

[4] The region itself identified the following clusters: Clothes and Footwear, Bio Medicine, Tourism, Agro-Food, Wine, Pharmacy, ICT, Wood; demonstrating a strong consistency with its RIS3 exercise.

to move beyond their traditional role as educators and sources of basic research and to act as key agents of innovation within the region. Whilst the potential for Universities to undertake this role is well-recognised (Arbo and Benneworth, 2007), some writers suggest that the entrepreneurial spillovers from universities located in less developed, or peripheral, regions have been exaggerated owing to their disconnection from the surrounding innovation eco-system (Brown, 2016).

Within North East Romania, the challenges of the disconnected University are apparent. National and European research programmes privilege a national outlook amongst researchers and respondents report that firms in the region tend not to look to the Universities as potential innovation partners. In part this is because of the limited levels of product or process innovation in the bulk of the SME community but it also has to do with ingrained practices and perspectives. Universities and Research Institutes have not traditionally worked with local firms, and so there is a lack of awareness of what each might offer. There is also reported to be a weak collaborative culture amongst many small and medium sized firms, and a reluctance to engage with partners who are external to the firm or close social networks.

Within the Universities and Research Institutes traditional practices also militate against stronger collaboration with businesses. Many academics have high teaching loads, which limit their ability to undertake research. Where research is undertaken, incentive structures reward basic research leading to academic publications rather than applied research working alongside companies. Even where academics wish to work with companies, senior academics report that administrative structures within the University have historically hindered this and that many academics lack the contacts to develop connections with small and medium-sized firms. In other examples, respondents report that the lack of formal certification for university laboratories (such as Good Laboratory Practice, ISO9001 or ISO17025), limits the acceptability of applied research results in the international market owing to Quality Assurance procedures in international markets and value chains. For many academics, securing such

accreditation is not a priority as the time and effort involved does not progress their research agendas.

Despite these challenges there are signs of an emerging role being played by research actors, particularly the Universities, as institutional challenges are overcome and awareness raised. In the ICT sector for example, regional actors report higher levels of collaboration between firms in Iasi and the universities, supported through strong personal relationships gained through the destinations of graduates from related courses. In another example, the Technical University in Iasi suggests that it has increased the level of its activity with local businesses from around 30 contracts in 2008 to some 170 in 2015. It has done so through a mixture of resourcing and streamlining internal administrative procedures; securing accreditation for its laboratory facilities and the personal efforts of senior staff to go out and meet companies. Whilst this says little about the value of these contracts the rise in the number of companies involved with the University is an important indication of changing attitudes.

Reportedly, the involvement of the universities in the development of regional innovation strategy making over the past decade has played an important part in this process of changing mindsets and practices within these bodies. Interviewees also suggested that the cluster-based approach promoted by the RDA has led to increasing connections being made between universities, research institutes and firms, particularly where engagement in such clusters is a condition of specific funding programmes. Moreover, firms and universities in the region are also beginning to value the ability of the university to act as a bridge to organisations in other regions of Romania (which can be a requirement to access national funding programmes).

5 Conclusions

The case of North East Romania provides a number of valuable insights into the challenges facing the development of smart specialisation approaches in cases where regional powers are limited. It also illustrates differences in how the

design of RIS3 can be interpreted. At the national level, the process has been dominated by a science-led approach that pays scant regard to issues of territoriality. In contrast, the regional approach has been more territorially-embedded, but has limited potential for implementation in its current format. Whilst there are strong complementarities between the two strategies, the lack of any recognition of the regional approach by national bodies raises important questions as to the perceived status of stimulating regional economic transformations. The risk is that national priorities will promote the national innovation system with any benefits to North East Romania being incidental to this primary objective. It also risks privileging national entrepreneurial discovery processes, and potentially reinforcing existing disconnections within regional eco-systems.

Despite these challenges, the example demonstrates how a RIS3 exercise can form part of an ongoing learning exercise, where knowledgeable parties seek to forge new paths for their organisations and support a transformation of the local economy. The regional RIS3 process, building on earlier activities undertaken in North East Romania, provides a positive learning-by-doing environment. It has strengthened understanding of the regional economy, developed an understanding of the role of innovation in economic development, and some new combinations of innovation potential have been highlighted. Potentially more significantly, an important function of the exercise in North East Romania has been to act as a signaling device to indicate where the region believes that its strengths lie. However, signaling alone is not enough. The means for implementation is also required and the case of North East Romania demonstrates the challenges of this in a complex and fragmented nationally-led system with weak regional institutions.

In practice, it is probable that North East Romania will continue to remain a strong beneficiary of national programmes that emphasise research-excellence. Its firms will also continue to innovate and more will probably do so. The question then is the extent to which this can be mobilized to support economic development in the region and help to move North East Romania from its

unwelcome position at the bottom of the GDP rankings in the European Union. To achieve this will require national and regional actors to work in concert, supporting reforms to institutional settings as well as promoting the connection of universities, research institutes and firms in regional settings. The status of the RDA in Romania offers a unique opportunity to promote grassroots development through aggregating regional needs and priorities. However, the opportunity to realise this remains limited owing to the national context.

Whilst the European Commission may not have the mandate or the capacity to identify regional specialisms, this work demonstrates that this may be less important than promoting the power to act. In the case of North East Romania, the European Commission can play an important role in encouraging national ministries to strengthen the regional dimension of national programmes supported by European Union interventions, particularly the Regional Operational Programmes. It can also encourage the consideration of regional RIS3 as a factor in the allocation of funds through national programmes. That it cannot require a spatial dimension to a national RIS3 may suggest the value of amending the ex ante conditionality criteria in the future.

The North East Romania RDA enthusiastically grasped the opportunity to develop a regional RIS3, in the face of the territorially anodyne national approach. In doing so it has not only raised the profile of smart specialisation in the region, it has also served to raise the international profile of the region and mobilised actions on the part of external actors, a significant achievement for one of the EU's poorest regions. Such policy entrepreneurship on the part of less developed regions is a reminder that knowledge, capacity and capability is more widely distributed that we sometimes give credit for. What remains missing is the supportive policy environment to enable implementation. Learning alone is not enough, as knowledge without power does not result in practical outcomes. North East Romania offers a salutary lesson that solutions to the regional innovation paradox may require behavioural changes at the national level as much as in building the capacity of regions.

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